IT IS CLAIMED:

1. A stem cell composition capable of rapid in vivo repopulation of the hematopoietic system of a subject comprising, an isolated stem cell treated with anti-transforming growth factor beta (TGF-β) antibodies under culture conditions effective to block the effect of TGF-β on replication and/or differentiation of said stem cells.

2. The composition of claim 1, wherein said stem cells are human hematopoietic stem cells, characterized as lacking the expression of lineage markers (lin-), and either (a) positive for cell surface expression of CD 34 and KDR and negative for cell surface expression of CD38 or (b) positive for cell surface expression of both CD 34 and Thy1.

3. The composition of claim 1, wherein said culture conditions effective to preserve the viability and differentiation state of said stem cells include culture medium containing from about 0.5 to 100 μg/ml of anti TGF-β antibody.

4. The composition of claim 1, wherein said culture conditions effective to block the effect of TGF-β include culture medium lacking exogenously provided cytokines.

5. The composition of claim 1, wherein said rapid in vivo repopulation means following in vivo readministration of said anti TGF-β antibody treated stem cells, hematopoietic reconstitution occurs at least 2-fold more quickly than for administration of the same number of stem cells which have not been treated with said anti TGF-β antibody.

6. A method of obtaining a stem cell composition characterized by prolonged survival in culture comprising:

(a) obtaining a population of cells containing stem cells from a subject;

(b) purifying said cell population in a manner effective to result in an enriched stem cell composition; and

(c) exposing said stem cells, *ex vivo*, to an anti TGF-β antibody, under culture conditions, and for a period of time, effective to preserve the viability and differentiation state of said stem cells.

7. The method of claim 6, wherein said enriched stem cell composition includes human HSC, characterized as lacking the expression of lineage markers (lin-), and either (a) positive for cell surface expression of CD 34 and KDR and negative for cell surface expression of CD38 or (b) positive for cell surface expression of both CD 34 and Thy1.

8. The method of claim 6, wherein said culture conditions effective to preserve the viability and differentiation state of said stem cells include culture medium containing from about 0.5 to 100 μg/ml of anti TGF-β antibody.

9. The method of claim 6, wherein said culture conditions effective to preserve the viability and differentiation state of said stem cells include culture medium lacking endogenously supplied cytokines.

10. The method of claim 6, wherein said prolonged survival in culture means the viability and differentiation state of said stem cells is preserved for a period of time which is at least 2-fold longer than for stem cells which have not been treated with anti TGF-β antibody.

11. The method of claim 6, wherein said prolonged survival in culture means the viability and differentiation state of said stem cells is preserved for at least 14 days longer than that of stem cells which have not been treated with anti TGF-β antibody.

12. A method for rapid in vivo repopulation of the hematopoietic system of a subject comprising:

(a) obtaining a population of cells containing stem cells from a subject;

(b) purifying said cell population in a manner effective to result in an enriched stem cell composition;

(c) exposing said stem cells, *ex vivo*, to an anti TGF-β antibody, under culture conditions, and for a period of time, effective to preserve the viability and differentiation state of said stem cells; and

(d) readministering said anti TGF-β antibody treated stem cells to the subject.

13. The method of claim 12, wherein said enriched stem cell composition includes human HSC, characterized as lacking the expression of lineage markers (lin-), and either (a) positive for cell surface expression of CD 34 and KDR and negative for cell surface expression of CD38 or (b) positive for cell surface expression of both CD 34 and Thy1.

14. The method of claim 12, wherein said culture conditions effective to preserve the viability and differentiation state of said stem cells include culture medium containing from about 0.5 to 100 μg/ml of anti TGF-β antibody.

15. The method of claim 12, wherein said culture conditions effective to preserve the viability and differentiation state of said stem cells include culture medium lacking exogenously provided cytokines.

16. The method of claim 12, wherein said prolonged survival in culture means the viability and differentiation state of said stem cells is preserved for a period of time which is at least 2-fold longer than for stem cells which have not been treated with anti TGF-β antibody.

17. The method of claim 12, wherein said prolonged survival in culture means the viability and differentiation state of said stem cells is preserved for at least 14 days longer than for stem cells which have not been treated with anti TGF-β antibody.

18. The method of claim 12, wherein said readministering includes autologous stem cell transplantation.

19. The method of claim 12, wherein said readministering includes allogeneic stem cell transplantation.

20. The method of claim 12, wherein said readministering includes transplantation of genetically modified stem cells.

21. A method of preparing stem cells for rapid *in vitro* proliferation, comprising:

(a) obtaining a population of cells containing stem cells from a subject;

(b) purifying said cell population in a manner effective to result in an enriched stem cell composition;

(c) exposing said stem cells, *ex vivo*, to an anti TGF-β antibody, under culture conditions, and for a period of time, effective to preserve the viability and differentiation state of said stem cells; and

(d) transferring said anti TGF-β antibody treated stem cells to culture conditions effective to result in the rapid proliferation of such stem cells.

22. The method of claim 21, wherein said enriched stem cell composition includes human HSC, characterized as lacking the expression of lineage markers (lin-), and either (a) positive for cell surface expression of CD 34 and KDR and negative for cell surface expression of CD38 or (b) positive for cell surface expression of both CD 34 and Thy1.

23. The method of claim 21, wherein said culture conditions effective to preserve the viability and differentiation state of said stem cells include culture medium containing from about 0.5 to 100 μg/ml of anti TGF-β antibody.

24. The method of claim 21, wherein said culture conditions effective to preserve the viability and differentiation state of said stem cells include culture medium lacking exogenously provided cytokines.

25. The method of claim 21, wherein said prolonged survival in culture means the viability and differentiation state of said stem cells is preserved for a period of time which is at least 2-fold longer than for stem cells which have not been treated with anti TGF-β antibody.

25. The method of claim 21, wherein said prolonged survival in culture means the viability and differentiation state of said stem cells is preserved for a period of time which is at least 14 days longer than for stem cells which have not been treated with anti TGF-β antibody.